

ABSTRACT OF THE DISCLOSURE

Provided are a semiconductor device having a self-aligned contact plug and a method of fabricating the semiconductor device. The semiconductor device includes conductive patterns, a first interlayer insulating layer, a first spacer, a second interlayer insulating layer, and a contact plug. In each conductive pattern, a conductive layer and a capping layer are sequentially deposited on an insulating layer over a semiconductor substrate. The first interlayer insulating layer fills spaces between the conductive patterns and has a height such that when the first interlayer insulating layer is placed on the insulating layer, the first interlayer insulating layer is lower than a top surface of the capping layer but higher than a top surface of the conductive layer. The first spacer surrounds the outer surface of the capping layer on the first interlayer insulating layer. The second interlayer insulating layer covers the first interlayer insulating layer, the capping layer, and the first spacer and has a planarized top surface. The contact plug passes through the second interlayer insulating layer, the first interlayer insulating layer, and the insulating layer between the conductive patterns, is electrically connected to the semiconductor substrate, has an outerwall surrounded by a second spacer, and is self-aligned with the capping layer.